



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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April 30, 2003

CERTIFIED MAIL

7002 2410 0005 1300 0300

Ms. Susan Roth
Roth Consulting
6236 27th Avenue NE
Seattle, WA 98115-7114

Dear Ms. Roth:

RE: Draft Work Plan for Additional Data Collection (Supplement to the Bridge Document)

Terminal 91 Tank Farm Site
Agreed Order #: DE 98HW-N108

On March 31, 2003, the Washington State Department of Ecology (Ecology) received your *Draft Work Plan for Additional Data Collection*, prepared by the Philip Services Corporation for the PLP Group. Ecology responded to the Work Plan's proposed activities for "Field Event 1" on April 10, approving this section of the Plan. Our review of the entire document has now been completed.

In general, Ecology concurs with the PLPs' proposals. However, the Department has several concerns and questions – included in today's enclosure – which must be addressed before the Work Plan is fully implemented. Consequently, the PLPs have Ecology's approval to proceed per the approved schedule in Table 3-1 with the following activities:

- Field Event #1 activities (previously approved)
- Vertical stratification tests at wells GP1 and GP7, using an analyte list that includes VOCs (per SW-846 8260), PAHs (per SW-846 8270SIM), petroleum (NWTPH-Gx and NWTPH-Dx), As, Cr, Pb, Hg, and Zn (using EPA-recommended 6000/7000 analyses for metals)
- Evaluation of methods for determining GW discharge rates
- Identification and evaluation of off-site upgradient GW concentrations
- Evaluation of potential preferential for contaminant migration in GW

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Prior to conducting the other proposed activities in the Work Plan (such as sampling and analyzing GW from new bulkhead wells, conducting the tidal study, and assessing LNAPL recoverability), however, the PLPs must satisfactorily address the enclosed comments in a revision of the document (which may simply include revised pages). This revision must be submitted within thirty (30) days of receipt of today's letter.

You will note that a number of the enclosed comments refer to the draft QAPP. Although the Work Plan's proposed sampling and analyses for contaminants is very modest, the QAPP has a number of deficiencies that should be addressed to ensure adequate data quality for the entire project. If you have any questions concerning this correspondence, please contact me at (425) 649-4449

Sincerely,



Ed Jones
Environmental Engineer
RAFT/HWTR

EJ:sd

Enclosure

cc: Galen Tritt, NWRO
Julie Sellick, NWRO
Jan Palumbo, EPA X
Central Files, HZW 6.6.2

Terminal 91 Tank Farm

Draft Workplan for Additional Data Collection

Ecology Comments

1. Page 3. Point of clarification. The sixth bullet on the page states that the PLPs will "estimate the discharge rate" for the areas of "significant groundwater discharges..." Later, however, it is stated that the PLPs will evaluate methods for estimating discharge rates. Do the PLPs intend to estimate discharge rates from the areas that appear well-connected to surface water *as part of the reporting of Field Event 2 results* or is the plan to estimate these rates as part of the estimation of discharge rates throughout the bulkhead area (for which a methodology has not been selected yet)?
2. Page 4. While Ecology concurs that the PLPs should move forward to assess the recoverability of LNAPL, the Work Plan should describe what will be done with the pumping/recovery data (collected as described in the SOP) and temperature/viscosity information, and how, specifically, it will be used to evaluate "recoverability."
3. Page 4. In the revised Work Plan the PLPs should include the objectives for the proposed vertical stratification testing at wells GP1 and GP7. The text should refer to the SOP (SOP # 124a) and discuss: a) which analyses will be conducted on the GW samples, and b) how the PLPs will use the resulting data (i.e., are the data being collected to confirm a particular hypothesis? What anticipated actions will be taken, depending on the results obtained? Etc.).
4. Page 5. Point of clarification: In Section 2.3 the text states that since minimal connectivity was observed during the past tidal study, chemical concentrations detected in groundwater (GW) from the bulkhead wells "near the boundary with surface water are not likely to be representative of water that is actually discharging to Elliott Bay..." Ecology agrees that the poor connectivity implies that relatively little discharge is occurring at the points included in the study, but for the discharges/"leaks" that are associated with these points, the analytical results may well represent discharging groundwater quality.
5. Page 6. Geotechnical sampling is proposed for two soil borings in Section 2.3.1. It is unclear how the PLPs will use the resulting information, and as such, it is difficult to comment on whether the testing proposed is sufficient. The revised Work Plan should clarify how the information obtained will be used in the RI/FS. {Please also see Comment # 17}
6. Page 6. The Work Plan should explain why the tidal study can vary from 48 to 72 hours.

7. Page 6. In Section 2.3.2 the text states that certain temporary wells, shown to have poor communication with the Bay, will either be decommissioned or used solely as piezometers. For clarity, the Work Plan should explain the conditions under which these wells would be left in place as quasi-piezometers.
8. Page 7. Section 2.3.4 proposes that the analyte list be limited to 5 metals, PAHs, and petroleum. Ecology understands the rationale behind the proposal, and may approve such a restricted "COPC" list for future routine monitoring, but believes that a fuller list – which at least includes Method 8260 VOCs – should be used for these one-time samples¹.
9. Page 8. Point of clarification: In Section 2.4 the text states that available information on underground utilities "that are expected to be constructed below the water table..." will be reviewed. Ecology assumes that this review will focus on utilities that are *suspected to have been* constructed below the water table.
10. Page 9. Section 2.6 discusses activities related to performing a search of available information on wells upgradient of the site. Ecology concurs with the proposal, and will review the PLPs' background "tech memo" that is intended to spell out the approach for developing and using background groundwater data. However, at this time the Department considers it unlikely that offsite wells would be better candidates for "background wells" than those in upgradient areas on-site. Ecology expects the file search proposed to be most beneficial in supporting the use of sampling data from these on-site wells for use as "background" COPC concentrations in the RI/FS.
11. Page 13. Section 5.3 discusses well decommissioning. The section should refer to a PSC or Terminal 91-specific SOP for well abandonment/decommissioning.
12. Page 18. In Section 5.6 the text states that after 24 hours each probe's data will be downloaded and checked for accuracy. The revised Work Plan (or QAPjP) should discuss how this accuracy check will be performed.
13. Page 18. In describing the calculation of the sample's density, the Work Plan should provide the values, or the method for determining the values, of coefficients A, B, and C.
14. Page 21. Section 6.0 states that all IDW will be handled properly. The section should refer to a PSC or Terminal 91-specific SOP for IDW management.
15. Table 2-1. Point of clarification: The second column on this table refers to a data gap associated with the "horizontal extent of contamination." Perhaps a foot note could help explain what the PLPs intended by this column. Is this intended to mean: the

¹ As "discussed" via Email, Ecology is amenable to allowing the PLPs to use the Work Plan's proposed analyte list to help choose locations for more permanent GW sampling stations. Once these locations have been chosen, however, the Department expects at least one GW sample, per well, to be analyzed for VOCs.

extent of GW contamination *areally*? If so, it is not clear how the soil borings by themselves – which will not be sampled for contaminants – will be used to fill this data gap.

16. Table 2-2. The proposed well depth for the temporary monitoring wells is shown here as approximately 7.5' below the estimated water "level." If this is meant to say that the wells will terminate about 7.5 feet from the water table, and the water table is at 7-10' bgs, it appears to be at odds with the proposal on page 14, which states: "the screened interval of each well will extend from approximately five feet bgs to 20 feet bgs..." or the top of the confining layer, if this layer begins at depths shallower than 20'. For clarity, the revised Work Plan should note: (1) the intended screen length², and (2) how much of the screened interval will be installed above the water table.

In addition, although the presentation in Section 5.4.1 is properly inclusive, this section should be converted into an "SOP" format. Then the Work Plan text can simply refer to the SOP, and need only discuss those elements of "temporary" well construction/installation for this project that deviate from the SOP.

17. Table 2-3. This table includes geotechnical sample collection methods for soils. Do the PLPs intend to perform all these measurements? Page 6 identifies only 4 "analyses": visual classification, grain-size distribution, porosity, and vertical hydraulic conductivity. If only the 4 tests will be performed, which of the two methods will be used to estimate hydraulic conductivity? The revised Work Plan should answer these questions.
18. Table 3-1. In the revised Work Plan this table should be replaced with the table submitted on April 14.
19. QAPP. The revised QAPjP should include a page which shows who prepared the QAPjP (even though this is evident on the title page) and who has approved it.
20. QAPP. While it is not required, the QAPjP would be improved by including a page indicating who has been provided a copy of the final, approved document (i.e., a distribution list).
21. QAPP. Page 1. Section 4 states that Section 7 of the Work Plan describes data quality objectives. Section 7, however, is the section which includes references. While the Work Plan does include **project** objectives, there does not appear to be a section entitled "How to Meet the Objectives of the Work Plan."

In addition, the document does not appear to include project-specific targets for data precision or accuracy. These "indicators" of data quality are briefly discussed on

² If 10' screens may not always be used (i.e., if the screen length will vary depending on the thickness of the shallow aquifer), the document could explain the conditions under which longer or shorter screens would be used.

- page 7, but no numeric goals are provided, indicating what level of accuracy/precision is adequate for ensuring a level of data quality consistent with the uses of these data. In general, the reader cannot determine what level of data quality the PLPs are striving for beyond using EPA-approved sampling/analytical methodologies and meeting risk-based reporting limits.
22. QAPP. The QAPjP should note the training requirements that must be met by staff conducting the fieldwork, or, preferably, refer to another PSC/T91 document (e.g., the GW Sampling and Analysis Plan) where these requirements are provided.
 23. QAPP. Table 4-1 of the Work Plan lists project contacts. Either this table, or a section in the QAPjP, should discuss personnel associated with QA/QC functions³.
 24. QAPP. In the revised QAPjP, a copy of the project-specific Chain of Custody form should be included.
 25. QAPP. A section of the document should be used to discuss instrument/equipment testing, inspection, and maintenance requirements. If these requirements are provided in another PSC/T91 document, the QAPjP may simply refer to that document and limit the discussion to the project-specific schedule for these activities and any actions that will be taken during the project that are different than, or in addition to, the information being referenced.
 26. QAPP. A section in the document should note the project-specific QA oversight activities such as readiness reviews, project surveillance⁴, and the process for response actions.
 27. QAPP. Page 6. While Section 8.3 lists a number of activities/procedures that the lab can use to assess data quality, it is not clear how the last 5 bullets will be applied to the project proposed in the Work Plan. That is, e.g., for the analyses anticipated for this project, the QAPjP does not state how many lab duplicates will be prepared and analyzed.

In the revised QAPjP the reader should either be referred to a laboratory document from which it will be obvious what QA/QC actions the laboratory will conduct **related to this project**, or those actions should be listed and explained in the QAPjP itself.
 28. QAPP. Page 7. Section 8.4 discusses duplicates, blanks, and spiking. While the information is generally useful, it is not obvious how many of each QC blank/duplicate will be used **for this project**. This project will result in far fewer than 20 GW samples. Ecology suggests that a table be included in Section 8.4 that

³ Table 4-1 does include the responsible party for data validation. This information need not be repeated.

⁴ i.e., how field activities will be checked to verify conformance with the approved Work Plan and associated SOPs.

states how many field duplicates, MS/MSD samples, equipment rinsate blanks, and field blanks are anticipated for this particular project. In addition, a completeness goal for sampling/analyses should be included.

29. QAPP. Page 9. The list of validation tasks in Section 11 should include assessing instrument performance, and the section should reference EPA functional guidelines for organic and inorganic data review (USEPA CLP, October 1999; and, USEPA CLP, February 1994, respectively).
30. QAPP. A section of the document should discuss how data will be reconciled with the project-specific DQOs.
31. QAPP. The document should include⁵ the following:
 - A list of the DQIs (targets) for surrogate recovery
 - A list of the DQIs (targets) for matrix spike and lab QC sample recoveries (per suite/analyte)
 - A list of DQIs (targets) for lab duplicates
 - Sample holding times
 - Sample preservation information (Section 8.2.1 includes "Preservatives" in its title, but no information is provided in the section), or reference to an SOP
 - A brief discussion of how information noted in the field will be archived, or otherwise entered into the database
 - A brief discussion related to data verification for this project
 - A brief discussion of data validation, justifying why an abbreviated QA review is appropriate for this project
 - A description, or reference to, the pertinent algorithms for assessing QC results
32. QAPP. The document should discuss those QA/QC actions that will be associated with the vertical stratification study and the tidal study, and explain why these are the proper actions to ensure adequate data quality.

⁵ Or, may reference another document that includes this information, if the project-specific DQIs are the same as those DQIs in the reference.